

Connecticut Children's CLASP Guideline

Elevated TSH with Normal Thyroid Hormone Level

<p>INTRODUCTION</p>	<p>A serum Thyroid Stimulating Hormone (TSH) concentration above the statistically defined upper limit of the reference range when serum thyroid hormone concentration is within its reference range is referred to as Subclinical Hypothyroidism (SH). In the pediatric population, the prevalence of SH is estimated to be 2-3%, although epidemiological studies concerning childhood and adolescence are lacking.</p> <p>The clinical course of SH is variable and spontaneous remission may occur in children and adolescents 80-90% of the time. Increased TSH levels have also been found in up to 23% of obese children and adolescents. It is hypothesized that an increase in TSH concentrations may represent an adaptive mechanism aiming to increase energy expenditure. Treatment with thyroid hormone replacement has no beneficial effect on BMI reduction.</p>														
<p>INITIAL EVALUATION AND MANAGEMENT</p>	<p>INITIAL EVALUATION:</p> <ul style="list-style-type: none"> ▪ Targeted history and physical exam <ul style="list-style-type: none"> – Growth data – Palpation of the thyroid gland – Family history of thyroid disease ▪ Preferred thyroid screening tests are TSH and free T4 ▪ Obtain Thyroid Peroxidase and Thyroglobulin antibodies (TPOAb and TGAb) <p>INITIAL MANAGEMENT: <i>See Appendix: Elevated TSH with Normal Thyroid Hormone Level Algorithm</i></p>														
<p>WHEN TO REFER</p>	<p>See PCP management in Appendix.</p> <p>URGENT REFERRAL (within 1 week) IF:</p> <ul style="list-style-type: none"> • Abnormal Free T4 <p>ROUTINE REFERRAL (within 4 weeks) IF ANY COMPLICATING FACTORS:</p> <ul style="list-style-type: none"> • Younger than 2 years of age • Positive thyroid antibodies* • Enlarged thyroid gland • Asymmetric thyroid enlargement, palpable mass/nodule • Thyroid injury, history of radiation or any neck surgery • Significant chronic medical conditions, such as: <table border="0" style="margin-left: 20px;"> <tr> <td>✓ Cardiac defects</td> <td>✓ Down Syndrome</td> <td>✓ Turner Syndrome</td> </tr> <tr> <td>✓ Dyslipidemia</td> <td>✓ Other autoimmune conditions</td> <td>✓ Any other syndrome</td> </tr> </table> • Past or present medication use that may alter thyroid dysfunction, such as: <table border="0" style="margin-left: 20px;"> <tr> <td>✓ Lithium</td> <td>✓ Amiodarone</td> <td>✓ Interferon α</td> <td>✓ Cholestyramine</td> </tr> <tr> <td>✓ Phenytoin</td> <td>✓ Carbamazepine</td> <td>✓ Interleukin-2</td> <td></td> </tr> </table> <p><i>*If positive antibodies but normal or low free T4 (Hashimoto's Thyroiditis in euthyroid state), refer to Endocrinology. Alternatively, if desired, may contact Endocrinologist to discuss monitoring patient by the primary care provider.</i></p> <p>DELAY REFERRAL IF:</p> <ul style="list-style-type: none"> ▪ Mildly elevated TSH (> reference range but ≤ 7.5 mIU/L) and normal thyroid hormone level (Free T4) and no complicating factors (see below) ▪ If level obtained during illness, repeat one month post-illness prior to making referral 	✓ Cardiac defects	✓ Down Syndrome	✓ Turner Syndrome	✓ Dyslipidemia	✓ Other autoimmune conditions	✓ Any other syndrome	✓ Lithium	✓ Amiodarone	✓ Interferon α	✓ Cholestyramine	✓ Phenytoin	✓ Carbamazepine	✓ Interleukin-2	
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HOW TO REFER

Referral to Endocrinology via CT Children's One Call Access Center

Phone: 833.733.7669 Fax: 833.226.2329

[Make a Referral - Connecticut Children's \(connecticutchildrens.org\)](http://connecticutchildrens.org)

For more information on how to place referrals to Connecticut Children's, click [here](#).

Information to be included with the referral:

- Notes from the initial and follow up visits with the PCP
- Complete growth chart
- Thyroid lab results and any other relevant diagnostic studies

WHAT TO EXPECT

What to expect from CT Children's Visit:

- History, physical exam reviewed
- Evaluation of prior laboratory testing and growth chart
- Additional labs, if appropriate
- Imaging studies, if appropriate
- Initiation of treatment with thyroid hormone, if appropriate
- Comprehensive patient education

Referral Timeline:

- If Free T4 abnormal: refer to endocrinology for appointment within 1 week
- All other referrals: routine referral to endocrinology for appointment within 1 month

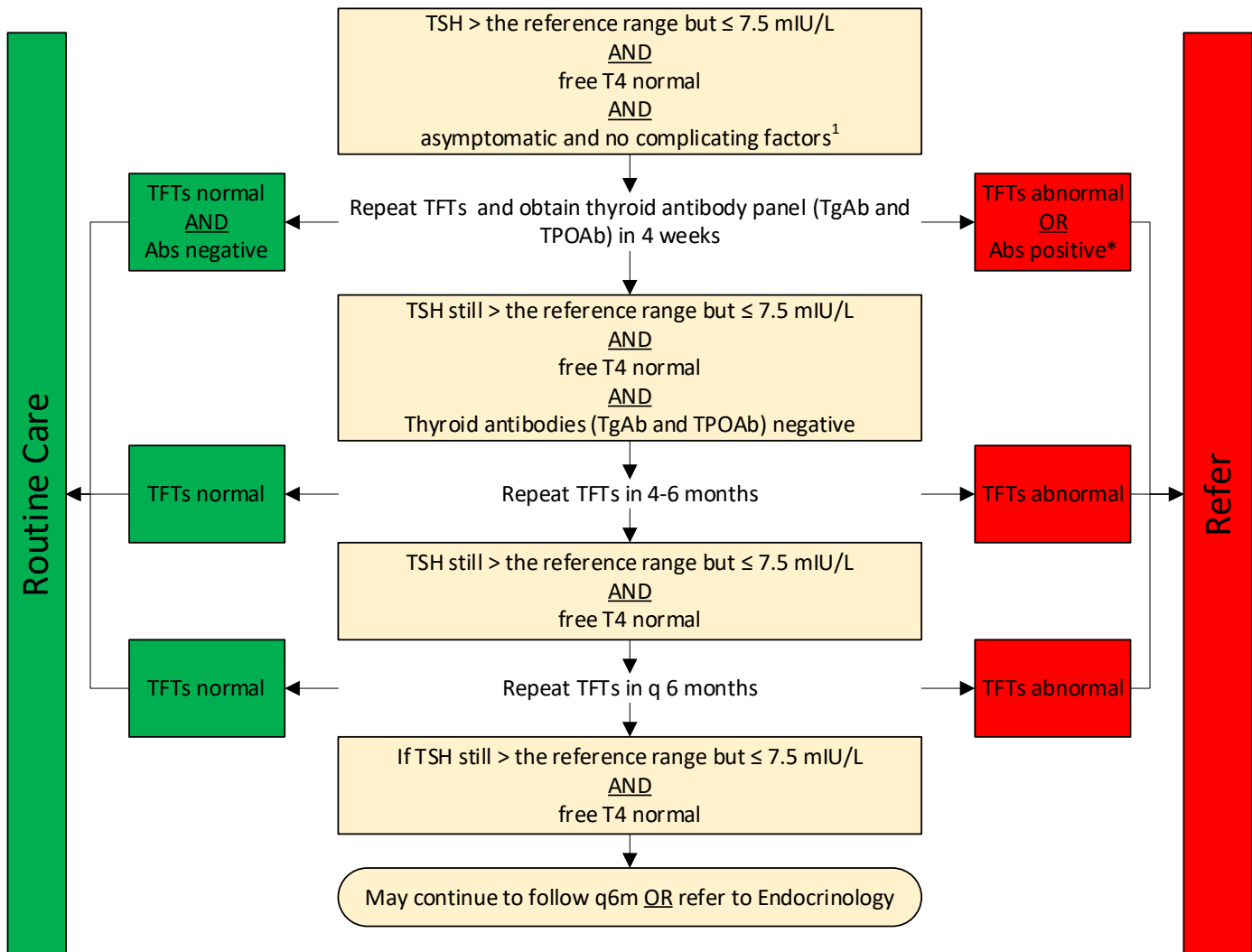
APPENDIX: Elevated TSH with Normal Thyroid Hormone Level Algorithm

Abbreviations:

- **Free T4** = thyroid hormone level
- **TFTs** = thyroid function tests (free T4 & TSH)
- **TgAb** = Thyroglobulin antibody
- **TPOAb** = Thyroid Peroxidase antibody

¹Complicating Factors

- Younger than 2 years of age
- Enlarged thyroid gland
- Asymmetric thyroid enlargement, palpable mass/nodule
- Thyroid injury, history of radiation or any neck surgery
- Significant chronic medical conditions such as: cardiac defects, Down Syndrome, Turner Syndrome, dyslipidemia, other autoimmune conditions, any other syndrome
- Past or present medication use that may alter thyroid dysfunction such as: lithium, amiodarone, interferon- α , cholestyramine, phenytoin, carbamazepine, interleukin-2



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